UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 08/849,525 | 08/29/1997 | GHITA LANZENDORFER | 435-WCG | 3976 |

7590 11/24/2008

Greenblum & Bernstein, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191

| EXAMINER | |
|---|---|
| CLAYTOR, DEIRDRE RENEE | |
| ART UNIT | PAPER NUMBER |
| 1617 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 11/24/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

---

*Ex parte* GHITA LANZENDORFER, FRANZ STAB, and SVEN UNTIEDT

---

Appeal 2008-4227
Application 08/849,525
Technology Center 1600

---

Decided: November 21, 2008

---

Before DONALD E. ADAMS, RICHARD M. LEBOVITZ, and MELANIE L. McCOLLUM, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal[1] under 35 U.S.C. § 134 involving claims to a skin cell treatment method. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

---

[1] Heard November 5, 2008.

## STATEMENT OF THE CASE

Claims 37-56 are pending and on appeal. We will focus on claims 37-39, 48, 51, 55, and 56, which read as follows:

37. A method of treating or modulating immunosuppression of skin cells induced by UVB radiation, wherein the method comprises topically applying to the skin of a person in need thereof an effective amount therefor of a cosmetic or dermatological formulation comprising one or more flavonoids selected from alpha-glucosylrutin, alpha-glucosylmyricitrin, alpha-glucosylquercitrinin, alpha-glucosylquercitrin, quercetin, rutin, chrysin, kaempferol, myricetin, rhamnetin, apigenin, luteolin, naringin, hesperidin, naringenin, hesperitin, morin, phloridzin, diosmin, fisetin, vitexin, neohesperidin, dihydrochalcone, flavone and genistein and wherein immunosuppression of skin cells induced by UVB radiation is treated or modulated.

38. The method of claim 37, wherein immunosuppression is treated.

39. The method of claim 37, wherein the composition further comprises one or more cinnamic acid derivatives.

48. The method of claim 37, wherein the cosmetic or dermatological formulation comprises one or more of alpha-glucosylmyricitrin, alpha-glucosylquercitrinin, alpha-glucosylquercitrin, rutin, chrysin, kaempferol, myricetin, rhamnetin, apigenin, luteolin, naringin, hesperidin, naringenin, hesperitin, morin, phloridzin, diosmin, fisetin, vitexin, neohesperidin, dihydrochalcone, flavone and genistein.

51. The method of claim 39, wherein a weight ratio of the one or more flavonoids and the one or more cinnamic acide derivatives is from 20 : 1 to 1 : 20.

55. A method of treating immunosuppression of skin cells induced by UVB radiation, wherein the method comprises topically applying to the skin of a person in need thereof an effective amount therefor of a cosmetic or dermatological formulation comprising (i) one or more flavonoids selected from alpha-glucosylrutin, alpha-glucosylmyricitrin, alpha-glucosylquercitrinin, alpha-glucosylquercitrin, quercetin, rutin, chrysin, kaempferol, myricetin, rhamnetin, apigenin, luteolin, naringin, hesperidin, naringenin, hesperitin, morin, phloridzin, diosmin, fisetin, vitexin,

neohesperidin, dihydrochalcone, flavone and genistein, (ii) one or more cinnamic acid derivatives and (iii) one or more antioxidants, and wherein immunosuppression of skin cells induced by UVB radiation is treated.

56. The method of claim 55, wherein the one one more cinnamic acid derivatives comprise at least one hydroxycinnamic acid derivative and wherein the one or more antioxidants comprise at least one of a tocopherol and a derivative thereof.

Claims 37, 38, 43, and 48-50 stand rejected under 35 U.S.C. § 103(a) as obvious over Evans (US 5,358,752, Oct. 25, 1994) in view of Suzuki (US 5,145,781, Sep. 8, 1992), as evidenced by Harrison's (Harrison's Principles of Internal Medicine 309-312 (13th ed. 1994)) (Ans. 4).

Claims 39-47, 51-53, 55, and 56 stand rejected under 35 U.S.C. § 103(a) as obvious over Evans in view of Suzuki, as evidenced by Harrison's, and further in view of N'Guyen I (US 5,023,235, Jun. 11, 1991) (Ans. 10).

Claim 54 stands rejected under 35 U.S.C. § 103(a) as obvious over Evans in view of Suzuki, as evidenced by Harrison's, and further in view of N'Guyen II (US 5,114,716, May 19, 1992) (Ans. 14-15).

OBVIOUSNESS – CLAIMS 37, 38, 43, 48-50, & 54

The Examiner rejects claims 37, 38, 43, and 48-50 under 35 U.S.C. § 103(a) as obvious over Evans in view of Suzuki, as evidenced by Harrison's. The Examiner also rejects claim 54 under 35 U.S.C. § 103(a) as obvious over Evans in view of Suzuki, as evidenced by Harrison's, and further in view of N'Guyen II.

The Examiner relies on Evans for teaching "a skin care composition containing an antioxidant that reduces the accumulation of lipid peroxides and other biological oxidation products in the skin" (Ans. 5). The Examiner

finds that Evans "teaches that [the] antioxidants can be applied to skin to prevent oxidative damage cause by UV radiation" and "to control oxidation resulting from burns to the skin and underlying tissues, such as in sun burn formulations" (*id.*). Thus, the Examiner finds that Evans "teaches the topical application to skin of a composition comprising an antioxidant to control the oxidative damage of skin damaged by UVB radiation" (*id.*).

The Examiner relies on Suzuki for teaching "that alpha-glycosyl rutin has properties as an antioxidant and . . . uv-absorbent, and can be provided in pharmaceuticals and cosmetics (i.e. for topical application)" (*id.* at 6). The Examiner finds that Suzuki "teaches that the alpha-glycosyl rutin acts as an antioxidant to exhibit activities of removing activated oxygen and suppressing the formation of lipoperoxides" (*id.*). The Examiner also finds that Suzuki "teaches that the alpha-glycosyl rutin is mainly composed of alpha-glucosyl rutin" (*id.*).

The Examiner concludes that it would have been obvious "to provide the alpha-glucosyl rutin of Suzuki et al. in the skin treatment method of Evans" (*id.*). In particular, the Examiner finds that Suzuki "teaches the desirability of incorporating the alpha-glycosylrutin into topical compositions where antioxidant and UV absorption activity is particularly desired, such as the skin care compositions of Evans" (*id.* at 18).

With regard to applying "an effective amount," the Examiner finds:

> Suzuki et al. teaches that the alpha-glycosyl rutin mainly composed of alpha-glucosyl rutin can be provided in an amount of 0.001 w/w% or more in cosmetics . . . , which is an amount that overlaps with the ranges recited in the claims, and Evans et al. teaches that an effective amount of an antioxidant added to a

> product may vary from 1 to 100,000 ppm by weight based on the total weight of the product.

(*Id.* at 7.) In addition, the Examiner concludes that it would have been obvious "to vary and/or optimize the amount of antioxidant provided in the composition, according to the guidance provided by Evans et al. and Suzuki et al, to provide a composition having desired properties, such as desired skin treatment" (*id.*).

The Examiner relies on Harrison's for providing evidence that "excessive exposure to UVB radiation is implicated in the development of a number of skin disorders, including the immunosuppression of skin cells . . . , which is believed to lead to a risk of cancer development in human skin" (*id.* at 7-8). Accordingly, the Examiner finds "that the population of individuals that has been exposed to excessive UVB radiation, such as those having sunburn, are a population that closely overlaps with and/or is the same as those patients in need of treatment or modulation of the immunosuppression of skin cells induced by the UVB radiation" (*id.* at 8).

Appellants contend that the Examiner erred in concluding that one of ordinary skill in the art would have been motivated, based on Suzuki, to include alpha-glucosyl rutin in Evans' composition (App. Br. 9-14). Appellants also contend:

> Even if one were to assume, *arguendo*, that one of ordinary skill in the art would be motivated to supplement the composition of EVANS with the alpha-glycosylrutin of SUZUKI and to use the corresponding composition for the purpose described in EVANS, . . . it is by no means certain that this supplemented composition would contain an amount of alpha-glucosylrutin which is effective in treating or modulating the immunosuppression of skin cells induced by UVB radiation.

(*Id.* at 14-15.) In addition, Appellants contend that the Examiner erred in concluding that the additional features recited in claims 38 and 48 would have been obvious (*id.* at 18-19).

*Issues*

Have Appellants shown that the Examiner erred in concluding that it would have been obvious to include alpha-glucosyl rutin in Evans' compositions? In addition, have Appellants shown that the Examiner erred in concluding that it would have been obvious to apply an effective amount of the formulation? Furthermore, have Appellants shown that the Examiner erred in concluding that claims 38 and 48 would have been obvious?

*Findings of Fact*

1. The Specification discloses cosmetic and dermatological formulations having a content of one or more flavonoids "for treatment or prophylactic treatment of the immunosuppression induced by UVB radiation" (Spec. 5-6).

2. The Specification also discloses that particularly preferred flavonoids include alpha-glucosylrutin (*id.* at 9).

3. In addition, the Specification discloses cosmetic and dermatological formulations comprising 0.001% by weight to 30% by weight of one or more flavonoids (*id.* at 15).

4. Evans discloses that the "use of antioxidants to inhibit peroxidation is well known," but that "the use of antioxidants in cosmetic products as generally practiced is targeted at maintaining the stability of the cosmetic ingredients themselves" (Evans, col. 1, ll. 30-47).

5. However, Evans discloses the purification of a naturally occurring phenolic diterpene, carnosic acid, the oxidation thereof to obtain carnosol, and the treatment thereof with a base to form carnosic acid salt, e.g., sodium carnosate, and that "these pure compounds are extremely effective in protecting the skin from peroxidation when applied topically" (*id.* at col. 2, ll. 4-45).

6. Thus, Evans discloses "a composition for use on skin, comprising an antioxidant effective amount of a pure phenolic diterpene compound . . . dissolved or dispersed in a skin compatible carrier. The composition provides a temporary prophylactic effect against the production of peroxides in skin tissues to which it has been applied." (*Id.* at col. 2, ll. 61-67.)

7. Evans also discloses that the "antioxidants have a protective effect against damage to the skin induced by UV radiation, particularly UVB radiation. Therefore, the antioxidants may be applied to the skin to prevent oxidative damage caused by UV radiation . . . , either alone or in combination with sunscreen agents." (*Id.* at col. 4, ll. 22-28.)

8. In addition, Evans discloses that the "antioxidants are useful for the control of oxidation resulting from burns to the skin and underlying tissues. As such, the composition of the invention may additionally include . . . medicinal or healing compounds." (*Id.* at col. 4, ll. 29-34.)

9. In Example 5, Evans specifically discloses adding carnosic acid to a sunburn lotion (*id.* at col. 5, ll. 34-42).

10. Evans also discloses that the "carrier for the antioxidant compound may be any cosmetically acceptable liquid or semi-solid material

that is not irritating to the skin. Such carriers include solutions, oils, fats, waxes, lotions, creams and liposomes." (*Id.* at col. 3, ll. 45-50.) In addition, Evans discloses that, "[g]enerally, the antioxidant compound is dissolved in a suitable solvent, such as propylene glycol" (*id.* at col. 3, ll. 50-52).

11. Evans additionally discloses that the "diterpene antioxidants may be combined with ascorbic acid or related compounds such as erythorbic acid, [or] their alkali metal salts, to provide a synergistic antioxidative effect" (*id.* at col. 4, ll. 7-10).

12. Evans discloses that acorbic acid, erythorbic acid, and related compounds are known antioxidants "employed in cosmetics to prevent or retard spoilage from rancidity (or deterioration from reaction with oxygen)" and thereby maintain "the quality, integrity, and safety of cosmetic products" (*id.* at col. 1, ll. 30-44).

13. Evans also discloses that "the synergism of carnosic acid and ascorbates is a consequence of the protective effect that the ascorbate has on carnosic acid under oxidative conditions" (*id.* at col. 7, ll. 25-28).

14. Suzuki discloses that rutin is "known as a yellow pigment and vitamin P" and has be "used from ancient times in . . . pharmaceuticals and cosmetics" (Suzuki, col. 1, ll. 9-15).

15. Suzuki also discloses that rutin is an antioxidant and that it is used as a uv-absorbent in cosmetics (*id.* at col. 1, ll. 47-55).

16. However, Suzuki discloses that rutin is "hardly soluble in water," which "renders its practical use very difficult" (*id.* at col. 1, ll. 56-59).

17. Thus, Suzuki discloses the formation of an alpha-glycosyl rutin "exhibit[ing] the same physiological activities as does intact rutin, and . . . free from toxicity, highly soluble in water, and therefore easily handleable" (*id.* at col. 2, ll. 16-21).

18. In particular, Suzuki discloses obtaining "alpha-glycosyl rutin mainly composed of alpha-glucosyl rutin and/or alpha-maltosyl rutin" (*id.* at col. 2, ll. 55-57).

19. Suzuki discloses that the alpha-glycosyl rutin can be used as "a highly-safe, natural yellow coloring agent, antioxidant, stabilizer, . . . uv-absorbent, [and] deterioration-preventing agent in . . . cosmetics" (*id.* at col. 6, l. 65, to col. 7, l. 3).

20. Suzuki discloses that alpha-glycosyl rutin can be incorporated "in an amount of 0.001 w/w % or more" (*id.* at col. 8, ll. 45-55).

21. Suzuki specifically discloses an ointment containing alpha-glycosyl rutin. Suzuki states that the "product is antioxidative, highly stable, and favorably usable as a high-quality sun-screening, skin-refining agent, skin-whiting agent and promoter for healing injury and burn." (*Id.* at col. 18, ll. 1-18.)

22. Harrison's discloses that "[e]xposure to solar radiation influences both local and systemic immune responses. UV-B appears to be most efficient in altering immune responses," that is, in generating an immunosuppressive effect (Harrison's 309).

*Analysis*

Under 35 U.S.C. § 103, "the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are

to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). A claim "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). The relevant question is "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *Id.*

"[N]ot unlike a determination of infringement, a determination of anticipation, as well as obviousness, involves two steps. First is construing the claim, . . . followed by . . . a comparison of the construed claim to the prior art." *Key Pharms. Inc. v. Hercon Labs. Corp.*, 161 F.3d 709, 714 (Fed. Cir. 1998). In addition, "[n]ewly discovered results of known processes directed to the same purpose are not patentable because such results are inherent." *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1376 (Fed. Cir. 2001).

Claim 37 is directed to a method of treating or modulating immunosuppression of skin cells induced by UVB radiation. The method comprises topically applying to the skin of a person in need thereof an effective amount therefor of a cosmetic or dermatological formulation comprising one or more flavonoids from a specified list. We interpret this claim to require that the formulation be topically applied to a person in need of treatment or modulation of skin cell immunosuppression induced by UVB radiation in an amount that is effective to treat or modulate the

immunosuppression. Appellants do not dispute the Examiner's finding that a sunburned person is such a person (Ans. 8).

Evans discloses "a composition for use on skin, comprising an antioxidant effective amount of a pure phenolic diterpene compound . . . dissolved or dispersed in a skin compatible carrier" (Finding of Fact (FF) 6). Evans specifically discloses sunscreen and sunburn compositions containing these diterpene compounds (FF 7-9). Evans also discloses that it is known to use antioxidants in cosmetic products to maintain the stability of the cosmetic ingredients (FF 4). In fact, Evans discloses compositions comprising a diterpene compound, together with another antioxidant to protect the diterpene compound (FF 11-13).

Suzuki discloses alpha-glycosyl rutin mainly composed of alpha-glucosyl rutin (FF 18). Suzuki discloses that alpha-glycosyl rutin is an antioxidant and uv-absorbent (FF 19). In addition, Suzuki discloses including alpha-glycosyl rutin in cosmetics, including sunscreens (FF 19 & 21). Based on the teachings in Suzuki, we agree with the Examiner that it would have been prima facie obvious to include alpha-glycosyl rutin mainly composed of alpha-glucosyl rutin in the sunscreen and sunburn compositions disclosed in Evans in order to provide additional antioxidant and/or uv-absorbent properties (Ans. 18). As indicated by the Supreme Court, "any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. at 1742.

In addition, Suzuki discloses incorporating the alpha-glycosyl rutin "in an amount of 0.001 w/w % or more" (FF 20). The Specification

discloses formulations comprising 0.001% by weight to 30% by weight of one or more flavonoids (FF 3). Given that the amounts disclosed in Suzuki overlap with the amounts disclosed in Appellants' Specification, we agree that the Examiner has set forth a prima facie case that it would have been obvious to topically apply an amount of the formulation that is effective to treat or modulate the immunosuppression. After a prima facie case is made out, the burden shifts to the applicant to show a patentable difference between the prior art and the claims. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). Appellants have not made such a showing.

Appellants have not shown that the Examiner erred in concluding that it would have been obvious to include alpha-glucosyl rutin in Evans' compositions or to apply an effective amount of the formulation. We therefore affirm the rejection of claim 37.

Claim 38 depends from claim 37 and recites that immunosuppression is treated. Evans discloses applying its composition on sunburned skin (FF 8-9). Appellants do not dispute the Examiner's finding that it would have been obvious to topically apply the formulation to a person in need of treatment or modulation of skin cell immunosuppression induced by UVB radiation (Ans. 8). The Specification states that alpha-glucosyl rutin treats immunosuppression (FF 1-2). Thus, we agree with the Examiner that treating immunosuppression is an inherent result of the method of claim 37 (Ans. 7-8 & 21). As a result, Appellants have shown that the Examiner erred in concluding that claim 38 would have been obvious. We therefore affirm the rejection of claim 38.

Claim 48 depends from claim 37 and recites that the cosmetic or dermatological formulation comprises one or more of a list of compounds that includes rutin. Suzuki discloses that rutin has the same physiological activities as alpha-glycosyl rutin (FF 17). In particular, Suzuki discloses that rutin is an antioxidant and that it is used as a uv-absorbent in cosmetics (FF 15). Thus, we agree that one or ordinary skill in the art would have had reason to include rutin in Evans' compositions for the same reasons that he or she would have had reason to include alpha-glucosyl rutin (Ans. 9). As noted by Appellants (App. Br. 18-19), Suzuki discloses that rutin is "hardly soluble in water" (FF 16). However, Evans does not require an aqueous composition (FF 10). Therefore, we do not agree that rutin's lack of solubility in water would discourage one of ordinary skill in the art from including rutin in Evans' compositions. As a result, Appellants have shown that the Examiner erred in concluding that claim 48 would have been obvious. We therefore affirm the rejection of claim 48.

Claim 54 depends from claim 37. The Examiner relies on Evans, Suzuki, and Harrison's as discussed above and relies on N'Guyen II for the features of claim 54 (Ans. 15-16). Appellants do not separately argue that this claim is patentable. We therefore affirm the rejection of claim 54.

*Summary*

As discussed above, we affirm the rejections of claims 37, 38, 48, and 54. Claims 43, 49, and 50 have not been argued separately and therefore fall with claim 37. 37 C.F.R. § 41.37(c)(1)(vii).

OBVIOUSNESS – CLAIMS 39-47, 51-53, 55, & 56

The Examiner rejects claims 39-47, 51-53, 55, and 56 under 35 U.S.C. § 103(a) as obvious over Evans in view of Suzuki, as evidenced by Harrison's, and further in view of N'Guyen I. The Examiner relies on Evans, Suzuki, and Harrison's as discussed above (Ans. 10).

The Examiner relies on N'Guyen I for teaching that "caffeic acid and . . . tocopherols are known to have antioxidant activity" and "can be suitably incorporated into cosmetic compositions" (*id.* at 11-12). The Examiner concludes that it would have been obvious "to provide the caffeic acid and/or tocopherol of [N'Guyen I] in the skin treatment method of Evans et al, Suzuki et al, and *Harrison's*" (*id.*).

Appellants contend that they

> are unable to see what would motivate one of ordinary skill in the art to add to a . . . composition which already contains at least two (or even at least three) antioxidants, i.e., (i) carnosic acid, carnosol etc., (ii) alpha-glycosylrutin and, preferably, (iii) ascorbic acid, erythorbic acid etc., two additional antioxidants, i.e., (iv) caffeic acid or an ester thereof and (v) an antioxidant such as tocopherol.

(App. Br. 16.) Appellants also contend that "none of documents cited by the Examiner appears to teach or suggest that <u>any</u> flavonoid and a cinnamic acid derivative should be employed in a certain weight ratio, let alone in a weight ratio range as recited in present claims 51 and 52" (*id.* at 20).

*Issues*

Have Appellants shown that the Examiner erred in concluding that it would have been obvious to add caffeic acid to the composition of Evans modified to include alpha-glucosyl rutin, as described in Suzuki? In

addition, have Appellants shown that the Examiner erred in concluding that the flavonoid/cinnamic acid derivative weight ratios recited in claims 51 and 52 would have been obvious? Furthermore, with regard to claim 56, have Appellants shown that the Examiner erred in concluding that it would have been obvious to add caffeic acid and tocopherol to the composition of Evans modified to include alpha-glucosyl rutin, as described in Suzuki?

*Findings of Fact*

23. As discussed above, the Specification discloses cosmetic and dermatological formulations comprising a flavonoid, such as alpha-glucosylrutin (FF 1-2).

24. The Specification also discloses cosmetic and dermatological formulations containing a flavonoid in combination with a cinnamic acid derivative (Spec. 5).

25. In addition, the Specification discloses that hydroxycinnamic acids and derivatives thereof are suitable cinnamic acid derivatives (*id.* at 10).

26. The Specification also discloses that caffeic acid is a preferred hydroxycinnamic acid derivative (*id.* at 12 and claim 42).

27. N'Guyen I discloses that tocopherols and caffeic acid and its esters are antioxidants (N'Guyen I, col. 1, ll. 36-42).

28. N'Guyen I also discloses an antioxidant system containing a stabilized ascorbyl ester and "another antioxidant selected from tocopherols and caffeic acid . . . or its esters" (*id.* at col. 1, l. 60, to col. 2, l. 42).

29. In addition, N'Guyen I discloses including this antioxidant system in cosmetic compositions, particularly anti-sun creams and milks (*id.* at col. 1, ll. 7-13, & col. 3, ll. 24-50).

30. Evans also discloses that tocopherols are known antioxidants employed in cosmetics to maintain their "quality, integrity, and safety" (Evans, col. 1, ll. 30-44).

*Analysis*

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. at 1739. "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose." *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1980). "[T]he idea of combining them flows logically from their having been individually taught in the prior art." *Id.*

Claim 39 depends from claim 37 and additionally requires that the composition further comprises one or more cinnamic acid derivatives. Claim 55 is an independent claim that is similar to claim 39. However, in addition to requiring a flavonoid and a cinnamic acid derivative, claim 55 requires that the composition contains "one or more antioxidants." Contrary to the arguments raised by Appellants (App. Br. 16), to render claim 55 obvious, the references need not suggest the combination of at least four antioxidants. Instead, Evans' diterpene compound meets the recitation in claim 55 of "one or more antioxidants" (*see* FF 6).

Caffeic acid is a cinnamic acid derivative as recited in claims 39 and 55 (FF 24-26). N'Guyen I discloses that it was known to include caffeic acid as an antioxidant in cosmetic compositions, including anti-sun compositions (FF 27-29). It would have been prima facie obvious to combine two or more compounds, each of which is taught to be useful as an antioxidant in a cosmetic composition, in a single cosmetic composition. *Cf. In re Kerkhoven, supra.* Thus, we agree with the Examiner that it would have been prima facie obvious to add caffeic acid to the composition of Evans modified to include alpha-glucosyl rutin, as described in Suzuki. Appellants have not shown that the Examiner erred. We therefore affirm the rejection of claims 39 and 55.

Claims 51 and 52 depend from claim 39 and each recite a flavonoid/cinnamic acid derivative weight ratio. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456 (CCPA 1955). We agree with the Examiner that it would have been obvious "to vary and/or optimize the amount and/or ratios of antioxidants provided in the composition, according to the guidance provided by the references, to provide a composition having desired properties" (Ans. 12). Appellants have not adequately explained why the claimed ratios would not have been obvious. Thus, Appellants have not shown that the Examiner erred in concluding that the weight ratios recited in claims 51 and 52 would have been obvious. We therefore affirm the rejection of claims 51 and 52.

Claim 56 depends from claim 55 and requires a hydroxycinnamic acid derivative and a tocopherol or a derivative thereof. Appellants argue that "neither N'GUYEN I nor any of the other documents cited by the Examiner teaches or suggests employing caffeic acid and a tocopherol in combination" (App. Br. 21). N'Guyen I discloses that caffeic acid and tocopherol are both antioxidants that can be used in cosmetic compositions, such as anti-sun compositions (FF 27-29). In addition, Evans discloses that tocopherols are known antioxidants employed in cosmetics to maintain their "quality, integrity, and safety" (FF 30). Although N'Guyen I discloses using caffeic acid or a tocopherol in the alternative, we agree with the Examiner that it would have been prima facie obvious to combine two compounds, each of which is taught to be useful as an antioxidant in a cosmetic composition, in a single cosmetic composition. *Cf. In re Kerkhoven, supra.* Thus, Appellants have not shown that the Examiner erred in concluding that it would have been obvious to add caffeic acid, which is a hydroxycinnamic acid derivative (FF 26), and a tocopherol to the composition of Evans modified to include alpha-glucosyl rutin, as described in Suzuki. We therefore affirm the rejection of claim 56.

*Summary*

As discussed above, we affirm the rejection of claims 39, 51, 52, 55, and 56. Claims 40-47 and 53 have not been argued separately and therefore fall with claim 39. 37 C.F.R. § 41.37(c)(1)(vii).

## CONCLUSION

The Examiner's position is supported by the preponderance of the evidence of record. We therefore affirm the rejections of claims 37-56 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

dm

Greenblum & Bernstein, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191